

A view of the U.S. Mission in Geneva from the main entrance.



'Uncle Sam's Showcase'

FLAGSHIP SOLAR ENERGY PROJECT PAVES THE WAY TO A GREENER FUTURE **BY WENDY LUBETKIN**

On July 4, as Americans everywhere celebrated Independence Day, the U.S. Mission in Geneva was also celebrating an important step toward energy independence at embassies around the world. It was the one-year anniversary of the Mission's groundbreaking photovoltaic energy system—the largest and most ambitious solar energy project ever undertaken by the U.S. government overseas.

The roof and façade of the once undistinguished seven-story building in Geneva's diplomatic quarter have been handsomely fitted with 950 square meters of cobalt-blue photovoltaic panels that glisten like cathedral windows in the sunlight and produce sustainable electric power—enough to power 37 average households.

"We see this as the flagship project for the State Department's efforts to make U.S. embassies worldwide greener and more self-sufficient," said General Charles E. Williams, director and chief operating officer of the Bureau of Overseas Buildings Operations.

The British environmental magazine *Green Futures* hailed the building as "Uncle Sam's showcase," providing a "dazzling array" for Geneva's diplomats and "big savings on power."

Creative Teamwork

What does it take to transform an ordinary office building into a showcase for the latest made-in-USA solar energy technology with an architectural design worthy of

featuring on a magazine cover? Teamwork, creative problem solving, diplomacy and partnership building.

It began in 2003, when Ambassador Kevin E. Moley, then U.S. permanent representative to the United Nations in Geneva, and his staff found themselves confronted with a dual problem. The concrete façade of the building had begun to crumble. And the post's energy costs were mounting dramatically, as electricity rates soared and the dollar declined.

General Services Officer Pamela Mansfield and Locally Employed Staff building engineer Patrick Grzanka learned that the Canton of Geneva and the local energy utility were offering interesting incentives for solar energy projects.

It became clear that a unique opportunity existed to solve both problems.

The keystone would be a public-private partnership bringing together the U.S.



Clockwise from left: Members of the solar project team pose outside the Mission. A view of the southwest façade of the Mission reveals the stair tower and conference center vertical arrays. U.S. Ambassador to Switzerland Pamela Willeford, left; OBO Director General Charles Williams, second from left; and Ambassador Kevin Moley hold a symbolic check for the purchase of energy from Geneva's electrical utility. Solar panels lay flat across the roof of the U.S. Mission.

Mission, Service Cantonal de l'Energie and the local energy utility, Services Industriels de Genève. The U.S. Mission would send the electricity it produced directly into Geneva's electricity grid (instead of storing it in batteries for use on-site) and SIG would buy it at a preferential rate established to encourage renewable energy production.

The photovoltaic panels would help protect the façade and prevent further deterioration, even as they generated clean electricity and lowered energy costs.

Model Project

In 2004, when General Williams tasked his team at OBO with the project, he was determined to make the venture a model for other embassies. Turning the U.S. Mission in Geneva into a solar-energy powerhouse would provide OBO engineers and architects with a template that could be used at other posts and incorporated into standard embassy design.

"In the future, photovoltaic technologies can prove particularly useful at embassies in regions of the world where sun is plentiful and power reliability is low," said OBO engineer Mike Christensen.

The photovoltaic design, engineering and panels used for the project are all pro-

duced by American companies. Construction was awarded to the lowest-bidding responsible and responsive contractor, the Swiss firm SunTechnics.

Earl Graves, the mission's supervisory GSO, oversaw construction. Engineering and design management was provided by Chuck Hosn of Richmond, Va.-based Hankins and Anderson Engineers.

The photovoltaic design was created by Steven Strong and Robert Erb of Solar Designs Associates, an award-winning Massachusetts firm responsible for the solar energy project at the White House and many other well-known projects across the United States. Their plans incorporated specially sloped sunshade arrays angled over windows to shade and cool the interior and produce additional energy savings through lower air-conditioning costs.

"The project has vastly enhanced the external appearance of the building," said OBO Project Architect Ronald J. Tomasso.

On July 5, the first annual reading of the meters revealed that the system had met its targets for the first year of operation.

Between July 5, 2005, and July 5, 2006, the mission produced enough power to

light up a neighborhood block for an entire year. The new photovoltaic system had begun to earn its keep, producing an average of 270 kilowatt hours of power a day and some \$60,000 worth of electricity.

"We are truly proud that this joint project has worked so well over the course of its first year, contributing to a cleaner environment by reducing carbon emissions by more than 150,000 pounds," said Ambassador Warren W. Tichenor.

The solar energy system at the mission is on track to pay for itself and serve as the inspiration for other Department projects around the world. ■

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